limb until localized tenderness has disappeared in the callus at the point of fracture. Backward bowing at the site of fracture should be carefully guarded against at all times, as this displacement, throwing the muscles out of the normal plane of action, causes serious after-derangement of the knee-joint. The ring of the Thomas splint should be observed daily and no over-riding of the tuberosity of the ischium be permitted.

*Complications*—With the advent of the Whitman method and the proper use of the Thomas splint, complications are few. At the point of entrance of the caliper there may develop a low-grade osteitis. This as a rule, however, takes care of itself when traction is discontinued. Nerve injuries, although occurring in twelve to twenty per cent of all cases during the war, are rare in industrial cases. They should, however, be watched for at all times and treated adequately. The same point applies to injuries to blood vessels, especially of the popliteal artery.

*Caliper Walking*—The fracture having united, the patient should not be permitted to bear his weight upon the limb until bony union is firm, otherwise, bowing ensues with shortening, and the results of weeks of careful attention are destroyed. The caliper walking splint allows the patient freedom of movement commensurate with his condition, and will be found a valuable and necessary adjunct to the treatment.

### SUMMARY

We have attempted to outline in the brief period allowed us, the essential points of treatment of fractures of the femur. Many smaller details have been omitted because we feel each worker will find that certain smaller changes will, if necessary, give him results in individual cases, but there are certain basic facts which we wish to reiterate before closing.

1. Fracture of the femur is a serious process, both in its immediate aspect and its possibility of permanent impairment of the artisan's function.

2. The Whitman and Thomas splint methods bring almost perfect results if properly applied. The medical profession was slow to take them up but the great war and later experiences in industrial surgery proved their efficiency.

3. Every case should be painstakingly watched. Daily inspection and frequent X-ray examinations are as essential as the proper application of the method chosen for treatment.

4. The mobility of the knee should be carefully guarded both by free, passive, and active movements and massage.

I have purposely not entered into the discussion of compounded fractures of this bone, because the essentials of treatment are the same as in uncomplicated cases, save for the proper management of the soft parts and any ensuing infection. This would open up the field of the treatment of wounds and infections and would really not in any way be tantamount to the essential process considered here—the treatment of fractured femurs.

## EFFICIENT RECORD MAKING IN THE TREATMENT OF INDUSTRIAL DISABILITIES

By HARRY LESLIE LANGNECKER, M. D.,
San Francisco

In the consideration of records concerning injuries of an industrial nature, simplicity, including complete details and progress toward recovery, is essential. Furthermore standardization of certain methods available to every physician is most important.

With this point in view, record making, which would accord with and contain necessary data, utilized in the medical consideration of the disability by the Industrial Accident Commission, was evolved, and in such a manner the disability cases referred to the Stanford University Hospital, Physiotherapy Department, have been recorded.

In order to conform to the efficient methods now being used, frequent conferences with Dr. F. E. Raynes, of the Industrial Accident Commission, were held. Many suggestions and certain measuring devices have been adopted and found most useful. To Dr. Raynes, therefore, much credit is due for stimulating and furthering the systematic use of simple, accurate measures, which might be considered a basis for a standardized record form to be used in the treatment of these cases. The adoption of such measures will prove of great value both in exhibiting medical efforts and in clarifying questionable conditions which so frequently have to be considered—at a later date—by the Industrial Accident Commission.

When an industrial case is referred for treatment to the Physiotherapy Department, a record is made by the methods about to be described. Observations are made frequently during the progress of treatment, and finally at the termination of treatment. A detailed account of how to use the recording paraphernalia would seem unnecessary in this paper, as the illustrations and forms readily explain themselves.

### RECORD OF DISABILITY CASE

Name .....Age.....Weight.....Height.....
Address .....Occupation.....
Employer .....Insurance carrier.....
Insurance status .....
Case referred by.....
Past history .....
Physicians who have attended case.....
Date of injury.....Region affected.....
Diagnosis .....
How accident occurred.....
Synopsis of treatment already received.....
Date examined when referred.....Ambulatory?.....
Orthopaedic status .....
Cardinal facts in case.....
Further treatment advised.....
Selected employment.....Work preference.....
Impression .....
Remarks .....

### SPECIAL RECORD FOR HAND DISABILITY

Name ..... Date.....

| | |
|---|---|
| Wrist | Radial flexion |
| Major | Ulnar flexion |
| Minor | Forearm |
| Dorsal flexion | Supination |
| Palmar flexion | Pronation |

| Fingers | | | | | |
|---|---|---|---|---|---|
| Flexion of | | | | Tip fails to reach | |
| Major | Proximal | Middle | Distal | palm, thenar | By |
| Minor | phalanx | phalanx | phalanx | or hypothenar eminence | inches |

Index .....
Second .....
Ring .....
Little .....
Thumb .....

Note loss of extension and other function under remarks.

Note—Record shows the loss of function in degrees and in the form of a fraction, the denominator being the uninjured member.

In the estimation of deformity or movement in joints of the extremities (a) paper protractor, numbered as in figure 3, together with (b) a zig-zag four-foot rule, as in figure 4, for the larger joints, or (c) a steel three-fold rule, as in figure 5, for the smaller joints, are used, the result obtained being in degrees. For use in finger deformities, the steel protractor, as in figure 6, may be used with dexterity.

SPECIAL RECORD FOR FOOT DISABILITY

Name..... Date.....
Disabled region.....
General contour..... Circulation.....
Toe flexion.....
Os calcis stability..... Longitudinal arch.....
Anterior arch.....
Abnormalities.....
X-ray findings.....
Measurements:
Dorsal flexion
Plantar flexion—with relation to ankle
with plantar flexion anterior portion
Inversion
Eversion
Foot prints for comparison.....
Remarks .....

Note—Record shows the loss of function in degrees and in the form of a fraction, the denominator being the uninjured member.

In consideration of injuries to the spinal column, tracings are made with the flexible measuring rod, as in figure 7, using the seventh cervical-vertebral spinous process and the first sacral spinous process (tip) as extreme points. These tracings represent the habitual posture, the amount of forward flexion, the backward flexion, lateral flexion to the left and to the right, as in figure 8. Repeated tracings will easily confirm the progress of the case. The actual curves may be enlarged or reduced by a pantograph.

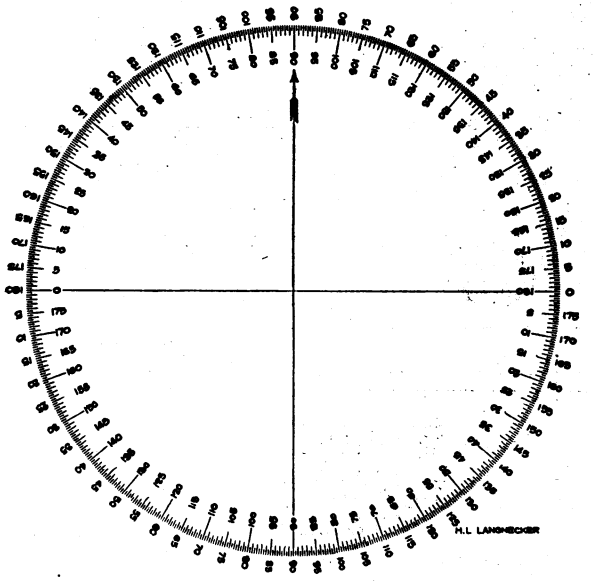


Figure 3

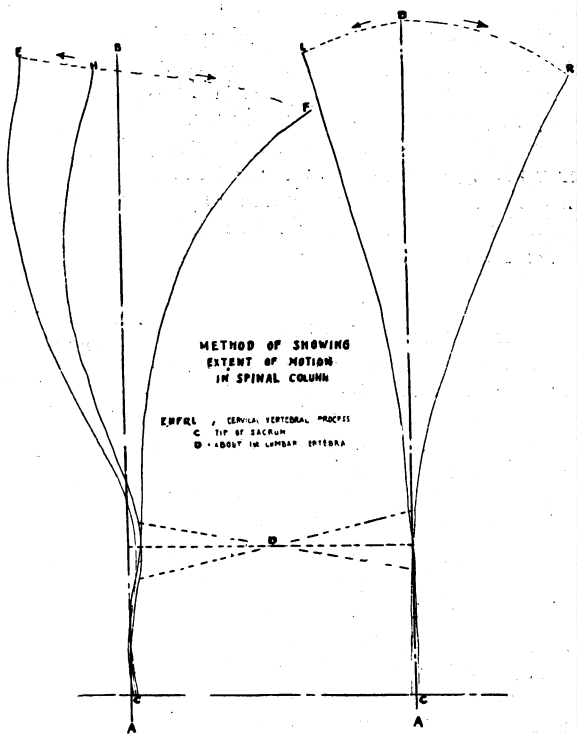


Figure 8

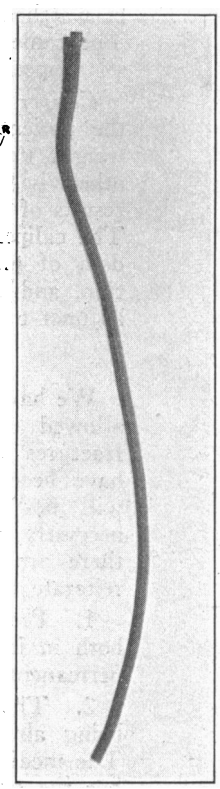

Figure 7

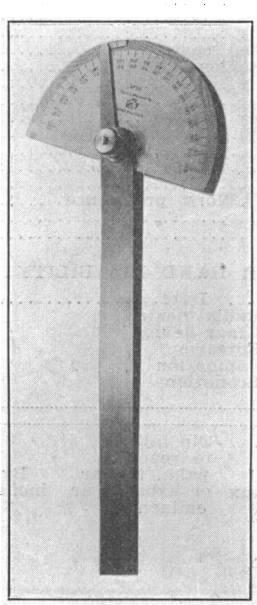

Figure 6

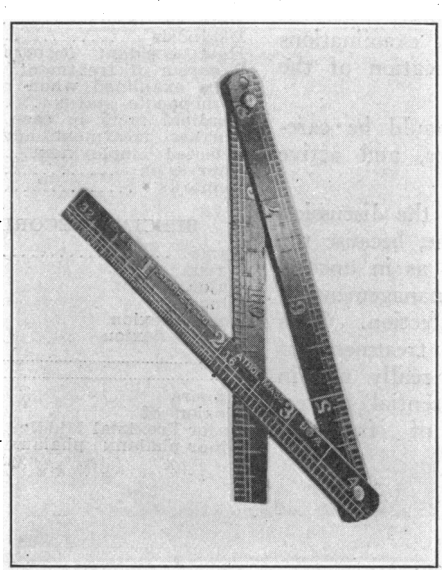

Figure 5

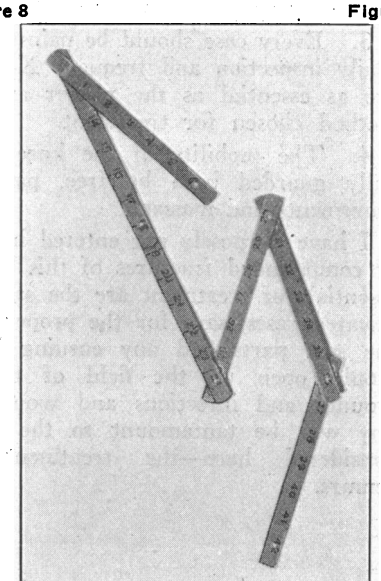

Figure 4

In disabilities involving the feet, much may be determined by taking impressions of the plantar surface while weight-bearing. Spreading of heel, as in os calcis injuries, lowered arches, abnormal shapes, callosities, etc., are graphically recorded, as shown in figure 9. The apparatus necessary consists of finger-print ink, a mixing surface and a rubber ink-roller for applying and equally distributing the ink on the sole of the foot. The impression is obtained on any ordinary paper.

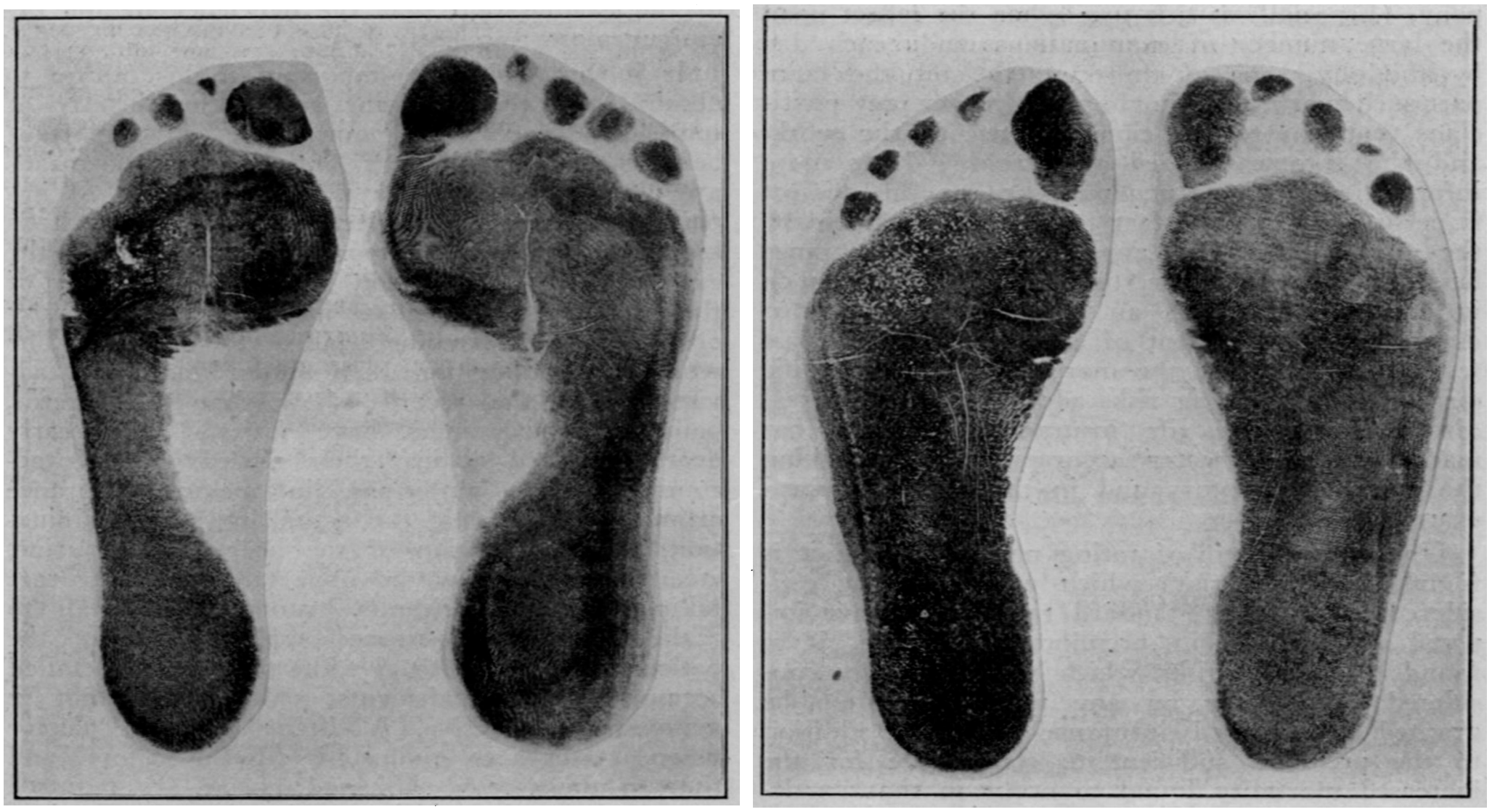

Figure 9

The employment of photographs to record bodily conditions resulting from industrial injuries, greatly enhances the value of any record. Stereoscopic views preferably, but even single views taken to clearly reflect the deforming or abnormal state, such as faulty posture, statics, cumbersome appliances, limited movement of an extremity or spinal column, can be adequately acquired at the first examination in the examining room by using a stereoscopic kodak on an adjustible stand, as shown in figure 10.

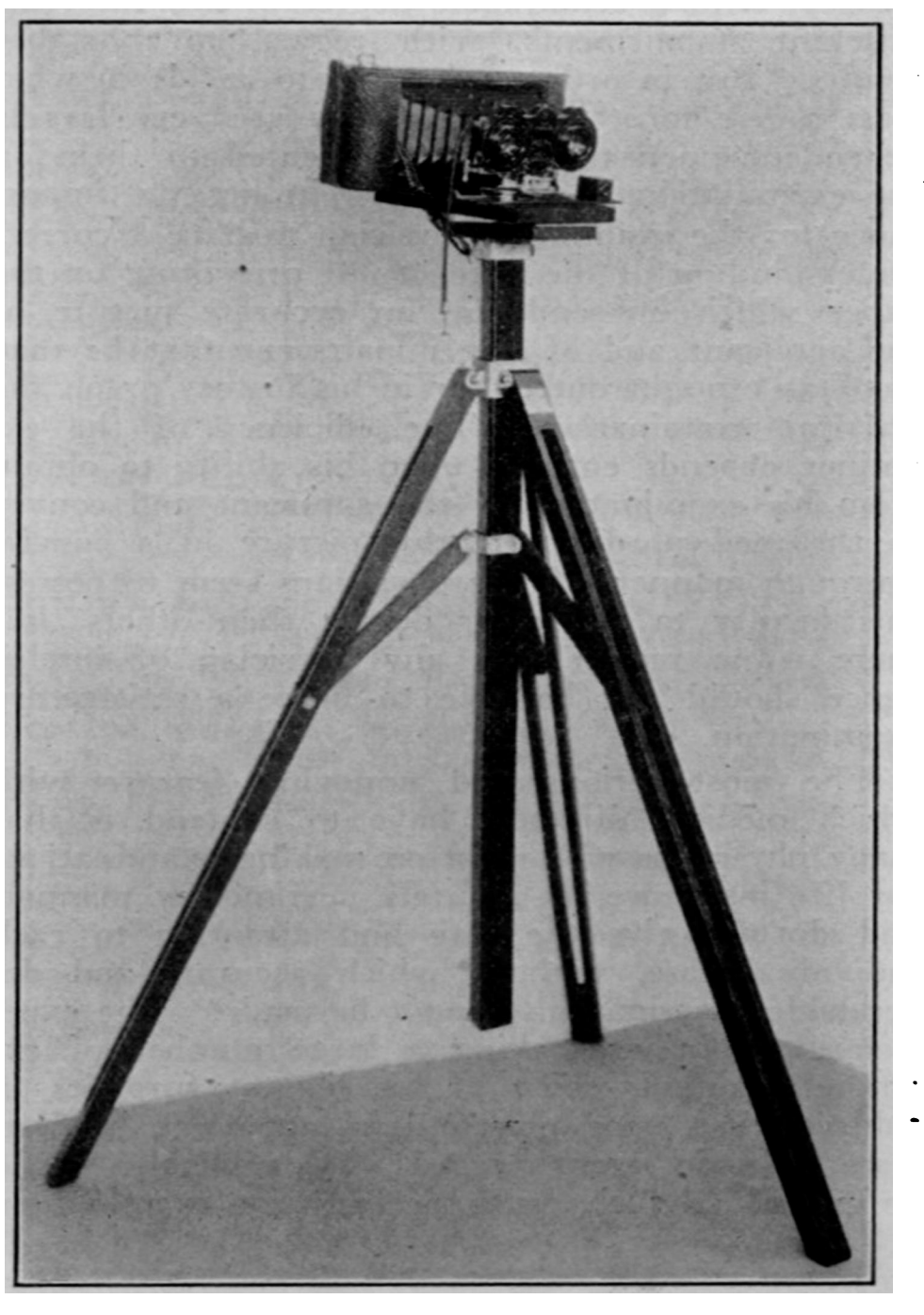

Figure 10


## SUMMARY

Better record making in the treatment of industrial disabilities is essential.

Methods must be simple, definite and include every available detail, and conform with the examination made by the Industrial Accident Commission.

Such methods should be uniform and standardized, so as to be readily adapted and utilized by any physician.